

DEFINITIONS

Dislocation: A joint is dislocated when its articular surfaces are *completely displaced*, one from the other, so that all contact between them is lost (see Fig-1.4, page 5).

Subluxation: A joint is subluxated when its articular surfaces are only *partly displaced* and retain some contact between them.

CLASSIFICATION

Dislocations and subluxations may be classified on the basis of aetiology into congenital or acquired.

DISLOCATION OF THE SHOULDER

This is the *commonest* joint in the human body to dislocate. It occurs more commonly in adults, and is rare in children. Anterior dislocation is much more common than posterior dislocation.

MECHANISM

A fall on an out-stretched hand with the shoulder abducted and externally rotated, is the common mechanism of injury. Occasionally, it results from a direct force pushing the humerus head out of the glenoid cavity. A posterior dislocation may result from a direct blow on the front of the shoulder, driving the head backwards. More often, however, posterior dislocation is the consequence of an electric shock or an epileptiform convulsion.

PATHOANATOMY

Classification: Dislocations of the shoulder may be of the following types:

- a) *Anterior dislocation:* In this injury, the head of the humerus comes out of the glenoid cavity and lies anteriorly. It may be further classified into three subtypes depending on the position of the dislocated head (Fig-13.4).
- **Preglenoid:** The head lies in front of the glenoid.
 - **Subcoracoid:** The head lies below the coracoid process.
 - **Subclavicular:** The head lies below the clavicle.
- b) *Posterior dislocation:* In this injury, the head of the humerus comes to lie posteriorly, behind the glenoid.

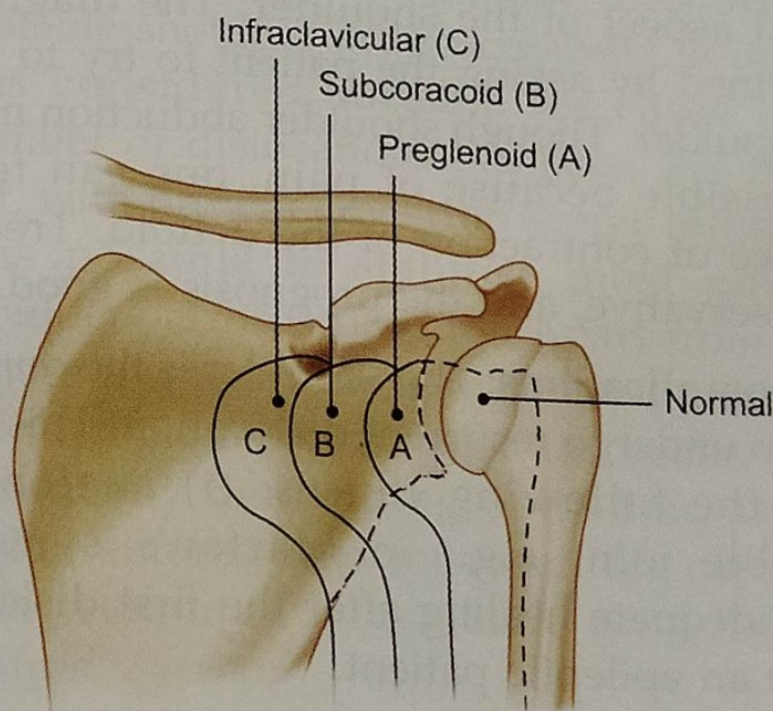


Fig-13.4 Types of anterior dislocation of shoulder

- c) *Luxatio erecta:* This is a rare type, where the head comes to lie in the subglenoid position.

DIAGNOSIS

Presenting complaints: The patient enters the casualty with his shoulder abducted and the elbow supported with opposite hand. There is a history of a fall on an out-stretched hand followed by pain and inability to move the shoulder. There may be a history of similar episodes in the past.

On examination: The patient keeps his arm abducted. The normal round contour of the shoulder joint is lost, and it becomes flattened. On careful inspection, one may notice fullness below the clavicle due to the displaced head. This can be felt by rotating the arm. The following are some of the signs, associated with anterior dislocation mostly of academic significance:

- *Dugas' test:* Inability to touch the opposite shoulder.

- *Hamilton ruler test*: Because of the flattening of the shoulder, it is possible to place a ruler on the lateral side of the arm. This touches the acromion and lateral condyle of the humerus simultaneously.

The diagnosis is easily confirmed on an anteroposterior X-ray of the shoulder (Fig-13.6). An axillary view is sometimes required.

Treatment of Subcoracoid Anterior Dislocation of Shoulder

The dislocation is reduced by manipulation either under sedation or under general anaesthesia by Kocher's manoeuvre. The reduction is maintained by immobilizing the limb in adduction and internal rotation with the hand of the affected side close to opposite shoulder (Fig. 5.7E). The immobilization is secured by strapping the arm to the trunk. The immobilization should be maintained for a period of 3 weeks.

TECHNIQUES OF REDUCTION OF SHOULDER DISLOCATION

Kocher's manoeuvre: This is the most commonly used method. The steps* are as follows: (i) traction—with the elbow flexed to a right angle steady traction is applied along the long axis of the humerus; (ii) external rotation—the arm is rotated externally; (iii) adduction—the externally rotated arm is adducted by carrying the elbow across the body towards the midline; and (iv)

internal rotation – the arm is rotated internally so that the hand falls across to the opposite shoulder.

Hippocrates manoeuvre: In this method, the surgeon applies a firm and steady pull on the semi-abducted arm. He keeps his foot in the axilla against the chest wall. The head of the humerus is levered back into position using the foot as a fulcrum.

Physiotherapeutic management

Basic objective: To regain full range active movements of the shoulder complex with an emphasis on the early return of movements of abduction and external rotation.

During immobilization (first 3 weeks): As the arm is strapped to the trunk in a position of adduction and internal rotation, only wrist and finger movements are possible. Full range strong resistive movements at these joints should be practised at regular intervals.

Self-resistive: Isometric contractions can safely be instituted to the deltoid, biceps and triceps.

Mobilization (after 3 weeks): After the removal of strapping the limb is supported in a sling. Elbow should be mobilized to the full extent by removing the sling intermittently.

Mobilization of the shoulder flexion-extension should be initiated as a small range pendular swinging movements in a forward stoop position. These movements

should to be carried out with arm within the sling. However, sling can be loosened to accommodate greater range of motion.

Initiation of shoulder abduction and external rotation: As these two movements are instrumental in causing redislocation they have to be initiated with utmost care and adequate stabilization at glenohumeral joint.

Relaxed passive abduction up to 45 degrees should be the initial aim. It is done with the patient in supine lying, the physiotherapist passively performs the arc of abduction with the *arm in internal rotation*.

External rotation should be initiated in the same position and by the same technique. It should be done with the *arm adducted by the side of the body*.

As it is important to avoid secondary adhesive capsulitis, relaxed passive movements to the shoulder should be carried out to the full or near normal range at the earliest. Self-assisted relaxed movements with wand in supine lying are also helpful at this stage.

Once a good passive range is attained, regime of strengthening is begun. Self-resisted isometric and slow isotonic movements should be taught as a home treatment programme. Resistive devices like dumbbells could be used in the department.

The programme should be monitored at regular intervals to ensure that 90% of the full range is achieved by 6–8 weeks following dislocation. Heavy resistive exercise, passive stretching and forced external rotation and abduction are safe after 12 weeks. It may be difficult in some patients to achieve the terminal range of abduction–elevation and external rotation. This could be painful and needs to be facilitated by a suitable thermotherapy adjunct.

Majority of patients regain full function by 12 weeks following the injury.

POSTERIOR DISLOCATION

Posterior dislocation of the shoulder is relatively less common than the anterior dislocation and is caused by a direct blow on the front of the shoulder with arm in internal rotation, e.g. during electroconvulsive therapy or epileptic attack or severe electrical shock.

Treatment

Reduction of the dislocation by manipulation. The limb is immobilized in a sling for 2–3 weeks.

Physiotherapeutic management

The major problem is stiff and painful movements of shoulder abduction and external rotation. Therefore, slow and graduated mobilization to restore these two movements are to be concentrated. However, other movements also should be handled to prevent adhesive capsulitis.

LUXATIO ERECTA

In rare cases, the limb is strongly abducted, e.g. holding a branch of a tree with arm in wide abduction while falling down from the tree. As a result of this injury, the head of humerus is pushed down underneath the glenoid and the arm is held fixed in wide abduction–elevation almost by the side of the head. This type of dislocation is therefore termed as *luxatio erecta*.